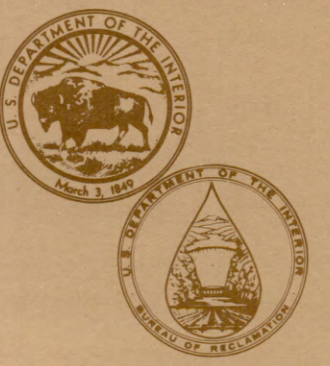
REVIEW OF POWER OPERATION AND MAINTENANCE PROGRAM



REVIEW REPORT

Communication and Control

Friant-Kern Canal
Cachuma Operations Office
Fresno Project

November 13-17, 1989

Mid-Pacific Region

Engineering Division
Denver Office
Bureau of Reclamation
UNITED STATES DEPARTMENT OF THE INTERIOR
Denver, Colorado

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United States Department of the Interior
BUREAU OF RECLAMATION
DENVER OFFICE
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IN REPLY
REFER TO:
D-5210

DEC 15 1989

Review of Power Operation and Maintenance Program

Review Report

To: Chief, Engineering Division

From: Richard F. Gebhardt, Electronics Engineer

Subject: Review of Power Operation and Maintenance - Communications Features - Mid-Pacific Region - November 13-17, 1989 (Review of Operation and Maintenance)

GENERAL

1. Mr. Richard F. Gebhardt of the Facilities Engineering Branch, Engineering Division, Denver Office, and Mr. J R. Murphy, Power Operations and Maintenance Branch, Mid-Pacific Regional Office, comprised the communications review team. Offices and locations visited during this review were: the Cachuma Operations Office and Bradbury Dam, 5 checks along the Friant-Kern Canal, the Fresno Office, Friant Dam, Green Mountain Hydrometeorological transmitter site, Bear Mountain Repeater Site, and the Regional Office in Sacramento, California. Mr. Gebhardt presented an exit interview to Mr. William E. Hagbery, Chief , Power O&M Branch at the Mid-Pacific Regional Office in Sacramento, California on November 17, 1989. The Regional Director was not available. Mr. Hagbery thanked the team for its review.

2. Locations and personnel visited were:

At the Cachuma Operations office:

Bruce Jones

On the Friant-Kern Canal:

Kern Check: Mr. L. J. (Kit) Kwiatkowsky, of the Fresno Operation and Maintenance office and Mr. John L. Williams of the Friant Water Users Authority joined the team at the final (Kern) check on the canal, and accompanied the team to each of the canal check sites visited. These were: Kern, Poso, Lake Woolloomes, Delano, and Fifth Avenue.

At the Fresno Project Office:

Mr. L. J. (Kit) Kwiatkowsky, who conducted the team to the Fresno Area Sites,

Mr. Bob Edwards, Chief, Operations Division, and Acting Project Superintendent.

Mr. Larry L. Duba, Pacific Gas & Electric

An exit interview was presented to Mr. Edwards.

At Friant Dam: George Hunter, Chief, Friant Dam Branch

Regional Office:

Mr. Hagbery, Chief, Power O&M Branch
Mr. Dan Netto, Power O&M Branch

3. At each stop, the team checked for proper posting of current radio frequency authorizations and the existence of a proper log book containing all previous Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log. Each facility and its antennas and feedlines were visually inspected and problem areas discussed briefly with personnel present.

Technicians and engineers were reminded of:

(a) The necessity and importance of posting a current radio frequency authorization at the site and having a log book with all maintenance records available. (Future releases of Reclamation Instructions (RI) 254 will require that the log book at each site include all previous originals of Reclamation form 7-2200 - Test Results - Radio Equipment Maintenance Log, for each transmitter.)

(b) The requirement for an up-to-date system diagram. (Posting of a current system diagram at or near each involved site would prove helpful to system operators and maintenance technicians.)

(c) The requirement to submit a corrected request for radio frequency assignment whenever any item on the radio frequency authorization is changed or found to be incorrect (i.e. location, antenna type or orientation, output power, etc.).

(d) The fact that the radio frequency authorization is associated with the frequency, location, and antenna characteristics, and not just the equipment.

CACHUMA OPERATIONS OFFICE AND BRADBURY DAM

4. The radio frequency authorization for the transmitter posted at the Cachuma Operations Office was current, but the antenna in use did not agree with the radio frequency authorization. Maintenance records indicated that preventative maintenance was being performed on a two-year schedule instead of every six months as required. Mr. Jones mentioned he was having difficulty obtaining the proper fuses for the radios and Mr. Murphy agreed to assist him in this regard. It was also suggested, because of the isolation of the site, that periodic (weekly) radio calls be made by Mr. Jones from his mobile transceivers to verify emergency command and control contact with the Fresno Project Office through the Granite Repeater and to ensure knowledge of the appropriate sites

within the Cachuma Operations area for best two-way radio contact. (This was also mentioned to the Fresno Project Office personnel during the team's visit to Fresno).

FRIANT-KERN CANAL

5. Preventative maintenance of the transmitters along the Friant-Kern canal appears to be inadequate. Of the 5 randomly selected sites visited by the team, none had the current radio frequency authorization displayed, the authorizations that were displayed were dated 1978 or 1979. Records indicate that current authorizations were transmitted to the Friant Water Users Authority by the Fresno Project Office on September 3, 1987. Log book entries were either non-existent, not current, and/or indicated preventative maintenance intervals greater than six months. Operation and maintenance of the Friant-Kern Canal radios is under contract to the Friant Water Users Authority. Mr. Murphy also reported projected increasing use of these same frequencies by Reclamation on other government transmitters in the area. He noted that the Friant Water Users Authority use of these frequencies has interfered with Reclamation use on occasion and that such interference is expected to increase as Reclamation use of their own frequencies increases. It is recommended that the Friant Water Users Authority consider converting their voice operations in support of their Reclamation O&M contract to Friant Water Users Authority equipment in the 400 MHz Federal Communications Commission band. A change to Federal Communications Commission frequencies would eventually be required in any event should the canal and its communication facilities be conveyed to the Friant Water Users Authority.

FRESNO PROJECT OFFICE AREA

6. The Fresno Project Office transmitters all had authorizations posted except for 166.3500 MHz. An outdated and invalid radio frequency authorization (I 793167) was posted. There does not appear to be an existing current valid radio frequency authorization for the Fresno Project Office on 166.3500 MHz. Mr. Murphy will recheck his records and transmit an application to the Denver Office for reinstatement of the missing radio frequency authorization. The logbooks indicated that preventative maintenance was current, but no completed Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log were available. The completed Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log were finally located in a folder with contract documents where they had been since the transfer of an employee who had been responsible for transmitting them to Mr. Kwiatkowsky. The team recommended that Mr. Kwiatkowsky resolve this routing problem so that future forms are forwarded to him, and in turn, to Mr. Murphy in the region and Mr. Gebhardt, Facilities Engineering Branch, D-5210, in the Denver Office.

7. The Friant Dam transmitter was visited by the team while waiting for fog to clear so that the helicopter could transport the team to several remote mountain hydrometeorological transmitters. At Friant Dam, the building itself was quite dusty and dirty. The authorizations were properly posted. There were no completed Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log at the site, but the log book indicated that the last two preventative maintenance visits had been spaced approximately six months apart. However, the last recorded visit was dated almost 10 months previously.

8. The team visited Green Mountain Hydrometeorological Site by helicopter after the fog cleared slightly. Mr. Murphy spotted the site and motioned to the pilot where it was. The pilot had been unable to find it. The posted radio frequency authorization at Green Mountain was current. No completed Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log were available at the site and the log book was reported to be kept at the project office. The team had been advised that a Bell Jet Ranger helicopter would be available for the site visits, and that the pilot would know exactly where to find the sites. The helicopter provided was a Hughes 500 which seemed marginally powerful enough for the site visited. The pilot was not able to locate any other sites with the help of Mr. Kwiatkowsky so the remaining three sites we had planned to visit were not visited. The other members of the team (Mr. Gebhardt and Mr. Murphy) in the rear seats were not able to offer much assistance in locating the sites because of incompatible helmet headsets and the absence of accompanying microphones.

9. The next day, the team visited the Bear Mountain Repeater Site after driving through a very heavy fog. The fog finally cleared after climbing approximately 1000 feet out of the valley. The buildings were clean and well maintained. The posted radio frequency authorization was current. There were no completed Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log, but the log book indicated that preventative maintenance was current. The team also checked the emergency generator and antennas. Although the batteries were well charged, the generator seemed to have some difficulty in starting itself. It was recommended that a regular automatic start test of the generator be accomplished on every visit to ensure prompt availability of emergency power when needed. It may also be necessary to have the maintenance shop check to see if the engine-generator set needs a tuneup or other maintenance, such as fuel pump check valve replacement. The Denver Office will attempt to schedule future communications reviews of maintenance approximately one month earlier to avoid the fog season.

10. The Denver Office had not received any Radio Equipment Maintenance Logs from the project for some time. Apparently, the majority of the maintenance has been performed. In most cases, it was simply that the reports had not been forwarded to the Denver Office.

11. A brief exit interview covering the problems encountered at Cachuma, Friant-Kern Canal, and in the Fresno Area was presented to the Acting Project Superintendent, Mr. Bob Edwards, Chief, Operations Division, Fresno Office, who thanked the team for its review.

12. The team, including Mr. Kwiatkowsky, held a brief discussion with Larry Duba of Pacific Gas & Electric, regarding their use of our facilities on Bear Mountain and safety regarding the battery/emergency generator building and venting requirements.

RECOMMENDATIONS

Cachuma Operations Office:

R1. Correct the radio frequency authorization for the Cachuma Operations Office to indicate the actual type of antenna in use (Paragraph 4).

R2. The region will assist Mr. Jones in obtaining spare radio fuses (Paragraph 4).

R3. Ensure that periodic preventative maintenance is performed on a six-month schedule for all fixed transmitters and on an annual schedule for mobile transmitters. (Paragraph 4).

R4. Maintain a looseleaf notebook at each fixed transmitter containing all available completed original Reclamation Forms 7-2200, Test Results - Radio Equipment Maintenance Log). Ensure that all personnel providing radio maintenance (contract or Reclamation) leave the original of the form in this notebook and send the yellow copy through the project office and regional office for transmittal to the Facilities Engineering Branch, D-5210, Denver Office, as required by Reclamation Instructions 254. Additional copies may be maintained in a project office or radio maintenance notebook as desired (Paragraph 4).

R5. Initiate a regular weekly contact procedure with the Fresno Project Office utilizing Cachuma mobiles via Granite Repeater to ascertain optimum contact locations and quality of communications for use in emergency situations when alternative modes of communication are inoperative (Paragraph 4).

FRIANT-KERN CANAL

R6. Formally advise the contractor (the Friant Water Users Authority) of the legal requirements to: display the current radio frequency authorization at each fixed transmitter site; inspect, test, and adjust all fixed transmitters at least semi-annually; and maintain a proper log book (Paragraph 5).

R7. Ensure that any reissuance or reaccomplishment of the contract with the Friant Water Users Authority clearly spell out the above provisions and the requirement to be in compliance with Reclamation Instructions, Part 254 (Paragraph 5).

R8. Ensure that the contractor performs periodic preventative maintenance on a six-month schedule for all fixed transmitters and on an annual schedule for mobile transmitters (Paragraph 5).

R9. Have the contractor Maintain a looseleaf notebook at each fixed transmitter containing all available completed original Reclamation Form 7-2200, Test Results - Radio Equipment Maintenance Log. Ensure that all personnel providing radio maintenance (contract or Reclamation) leave the original of the form in this notebook and send the yellow copy through the project office and regional office for transmittal to the Facilities Engineering Branch, D-5210, Denver Office, as required by Reclamation Instructions 254. Additional copies may be maintained in a project office or radio maintenance notebook as desired (Paragraph 5).

R10. Advise the contractor to plan for, procure, and install the necessary equipment to convert its voice radio operations in support of their Reclamation O&M contract to Federal Communications Commission frequencies in the appropriate band (dedicated frequencies, if not available in the very high frequency band, might possibly be available in the 400 MHz band from the Federal Communications Commission) (Paragraph 5).

FRESNO PROJECT OFFICE AREA

R11. Submit a request for radio frequency assignment to the Facilities Engineering Branch, D-5210, Denver Office for the 166.3500 MHz transmitter at the Fresno Project Office (Paragraph 6).

R12. Resolve the routing problem in the Fresno Project Office so that the yellow copy of completed Reclamation forms 7-2200, Test Results - Radio Equipment Maintenance Log for all fixed transmitters are properly routed through the project office and the regional office for transmittal to the Facilities Engineering Branch, D-5210, Denver Office in a timely fashion (Paragraph 6).

R13. Maintain a looseleaf notebook at each fixed transmitter containing all available completed original Reclamation Form 7-2200, Test Results - Radio Equipment Maintenance Log). Ensure that all personnel providing radio maintenance (contract or Reclamation) leave the original of the form in this notebook and send the yellow copy through the project office and regional office for transmittal to the Facilities Engineering Branch, D-5210, Denver Office, as required by Reclamation Instructions 254. Additional copies may be maintained in a project office or radio maintenance notebook as desired (Paragraphs 6,7,8,9).

R14. Ensure, in the future, the availability of adequate maps and/or personnel familiar with the site locations so that the sites may be quickly located and visited with a minimum loss of time (Paragraph 8).

R15. Have engine maintenance personnel check the generator set for tuneup or other maintenance. In addition, initiate a regular (every visit) test of the emergency generator automatic start procedure at each remote fixed site. Alternatively, investigate the possibility of a periodic automatic timer start mechanism or a remote start test system, as well as a remote "generator running" indication, perhaps with an audible tone on the frequency (Paragraph 9).

Richard F. Gebhardt, Electronics Engineer

Concurred: James D. Sloan
James D. Sloan
Chief, Facilities Engineering Branch

Approved: Michael B. Bessler
Michael B. Bessler
Acting Chief, Engineering Division

GPO 831-210